Project Accutherm

Context

Optimization of renewable energy exploitation is a major challenge to meet quickly and globally all around the world. While solar and wind renewable energy comes to a certain degree of maturity, energy storage is still a large working field full of opportunities.

In developed countries, one of the main electricity consumers is the cold chain: about 25% of the whole electricity production is used to maintain food at low temperatures.

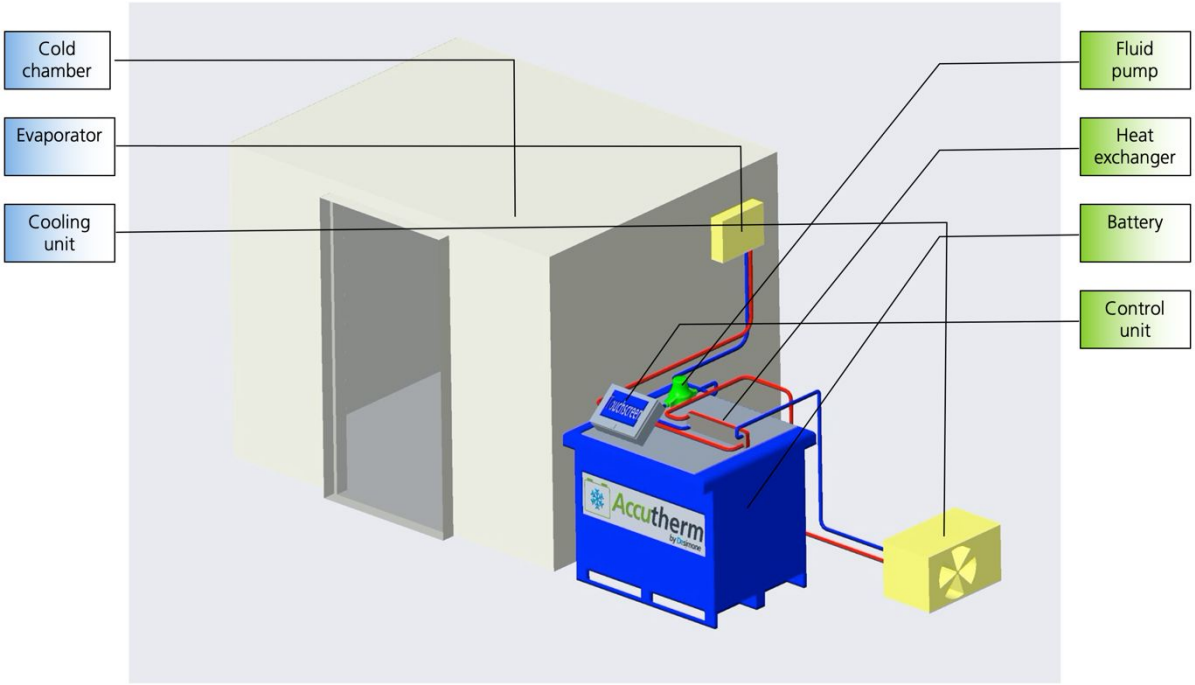
For this reason, in 2015, Desimone together with two research centers (CRM and CSL) has launched, under the aegis of the “Pôle Greenwin”, a R&D project based on thermal energy storage, by exploiting the potential of phase change materials.

Present situation

This project has been successful and ended in 2018. The results are very encouraging and should allow to consider a competing product as an alternative to the classical electric battery storage.

The prototype developed during the R&D phase includes:

- A tank full of phase change material adapted for keeping low positive temperatures of a cold room.
- A specific heat exchanger allowing heat transfer with the “cold” battery with a promising efficiency.
- The peripherals required for energy transmission to a real cold room which allowed us to realize several measurements and experimental test campaigns.
- A software for driving the whole system and performing measurement about the efficiency of the whole installation.



Next steps

The next step of this challenging project is to realize an industrial system inspired from the prototype (from TRL4 to TRL8). This industrial (and « saleable ») product has not been realized yet. Objectives are :

- To use the R&D results to develop a thermodynamic model of the system allowing to dimension the components of Accutherm according to the parameters of a real installation.
- To develop and realize a software for driving the installation according to the user parameters.
- To optimize the industrial design of the whole system, and to determine how to manufacture the tank and the heat exchanger.
- To develop a whole system in a perspective of mass production.

Commercial and marketing aspects

Market analysis

Economical aspect is also important: energy pricing policies are very different between the countries, even between regions. An international market study evaluating the commercial potential of Accutherm should be realized, as well as an analyze of the competitors. The study should analyze the Return On Investment of the product following these two points: the type of customer and the sales territories. This study should determine form these data the selling price and the volumes to expect, which would allow DeSimone to calibrate its future manufacturing line.

Business model

An analysis will be realized to validate the optimal business model for Desimone. Companies specialized in refrigeration systems will be the link between Accutherm and final customers. The ideal business model would be a partnership between one or several major suppliers and Desimone, avoiding in this way the slow and tedious task of building a distribution network from the scratch. Analysis should take care of potential profit margins but also identify potential partners for different countries and even establish informal contacts.

Marketing

Both analyses described above should give rise to a launching calendar, on top of which a communication strategy will be deployed. This strategy will be very dependent on the conclusions of the business model analysis: integration to the partners' products, direct marketing with the customers, indirect marketing with installers, press communication, ...

Furthermore, a reflection will be carried out to determine the brand strategy considering that this business is far from the core business of Desimone.